PRELIMINARY PLANT DESIGN OF CHLOROFORM FROM ACETONE AND BLEACHING POWDER CAPACITY 40,000 TONNES PER YEAR

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2015

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Statrting the fact that final project results that i make and submit this is the result of my own work, except for quotations and summaries that everything . I have explained the sources. If the final project is plagiarism and other scientific or research work, then i am ready to accept the sanction both academically and law.

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(Muhammad Fahmi Hakim)

MOTTO

LIFE IS STRUGGLE

DEDICATION

I dedicate this work to :

My beloved mother and father. Thank you for your prayers, support, love, sacrifice and education you've given.(Abdi Roat,S.Pd and Sri Mulyani)

My beloved brother, Muhammad Fiqri Dzikrullah,S.P.and my beloved sister Arsya Fadhila Putri Ananda . who always gives support, advices, and support me to hang on.

My Future ☺ *,Anisah Anggraini Putri who always gives support,inspiration and spirit .*

All of my friends are ready for help me, Student of PESMA KH.MAS Mansyur

All of my students who brought color into my life.

All of my classmates in the International class 2011 who gave me comfort when learning.

All of my friends from 2009, 2010, 2011, 2012, 2013 and all of people, who give me support until my final project are completed.

Thank's you for All…

PREFACE

All praises due to Allah SWT, because of his mercy and blessing this final project been completed. This report is one of requirements to pass the bachelor in chemical engineering.

The author realizes this report is not perfect due to our limited knowledge and experience, therefore advice and suggestion are welcome.

In this occasion, the authors would like to thank to every one who has helped and guided in completing this report,

1. Allah SWT who has given the opportunity to complete this final project
2. Prophet Muhammad S.A.W. who has given exemplary to do the best
3. Both Parents who always provide support in completing the final project
4. Muhammad Mujiburrohman, S.T., M.T., Ph.D. as first supervisor of final project
5. Emi Erawati, S.T.,M.Eng. as second supervisor of final project
6. Rois Fatoni, S.T., M.Sc. Ph.D. head of Chemical Engineering Department of UMS
7. Qomaroh, For good discussion.
8. Everyone who has supported the author to carry out this final project very well.

Authors wish this report to be benefical to those may concern.

Surakarta, March 2015

Muhammad Fahmi Hakim

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ABSTRACT

Chloroform is one of industries have been good prospect. For need chloroform, Indonesia still importing from the other countries.

Chloroform used as an anesthetic and a non-polar solvent in laboratories or by industries. From many factors as the availbillity of raw materials, transportation, need of chloroform in Indonesia and overseas, can determine optimum capacity to produce chloroform is 40,000 tonnes/year. With reacted between bleaching powder and aceton in ratio 27,522 kg of acetone and 2,752 kg of bleaching powder in batch reactor (T=50℃ and P=1 atm) during 2 hours, will produce chloroform and byproducts like as calcium acetate $Ca(CH_3COO)_2$, calcium hydroxide ($Ca(OH)_2$), calcium chloride ($CaCl_2$). Plant will be build at 2017 in Cilegon,Banten with area is 52,332 m^2. total of water needs is 278 m^3/hours, steam required is 2,693.886 kg/h,for electricity is 542 KW,fuel requirement is 82.79 L/h.

The economic analysis concludes that fixed manufacturing cost (Fa) is 1,845,139,452,209. Variable cost (Va) is 16,510,294,893,475. Regulated cost (Ra) is 16,822,580,694,015. Selling product (Sa) is 41,325,887,664,951. ROI (Return on Investment) before and after tax are 99.95% and 69.97%. POT (Pay OutTime) before and after tax are 0.91 years and 1.25 years. BEP is 52.58 % and. So if this plant will be build so many advantages and very profitably.

Keywords : chloroform, acetone, bleaching powder.